

**APPLICABLE MODELS**

**PA-30 & PA-39**

**KNOTS 2U, INC.  
NACELLE FAIRINGS  
INSTALLATION MANUAL**

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**REVISION PAGE**

<u>REV#</u>	<u>DATE</u>	<u>PAGE</u>	<u>EFFECT</u>
A	07/01/93	ALL	COMPLETE REVISION OF MANUAL WITH IMPROVED INSTALLATION PROCEDURES.

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**SECTION 1.0 =RIGHT NACELLE FAIRING INSTALLATION=****NOTE:**

*DUE TO THE PROXIMITY OF THE FUEL SYSTEM AND OTHER WIRING, ETC. WHICH MAY BE BEHIND THE HEAT SHIELD, IT IS IMPERATIVE THAT DURING DRILLING THE DRILL NOT PENETRATE ANY MORE THAN NECESSARY. ALSO, THE EXISTING HEAT SHIELDS ARE NOT REMOVED FOR THIS INSTALLATION AND IT IS RECOMMENDED THAT THEY BE CLEANED THOROUGHLY AND AN AIRWORTHY PATCH APPLIED TO ANY CRACKS OR HOLES, BEFORE INSTALLING THE NACELLE FAIRINGS*

- 1.1 **-REMOVING RIGHT COWLING-**  
REMOVE THE SIDE AND BOTTOM COWLINGS FROM THE RIGHT ENGINE. REMOVE EXHAUST STACKS TO CLEAR NACELLE FAIRING DURING INSTALLATION. ALSO, LOOSEN OIL BREATHER CLAMP FROM FIREWALL TO ALLOW MOVEMENT.
- 1.2 **-REMOVING EXISTING EDGE RIVETS-**  
ON THE UNDERSIDE OF THE RIGHT NACELLE, AT THE TRAILING EDGE OF THE LOWER COWL ASSEMBLY, LOCATE TWO ROWS OF FLUSH RIVETS WHICH EXTEND STRAIGHT AFT SECURING THE EXISTING HEAT SHIELD ASSEMBLY TO THE NACELLE. STARTING AT THE FRONT RIVET REMOVE ALL 24 RIVETS IN EACH ROW. DO NOT REMOVE TRAILING EDGE RIVETS. MARK THE TRAILING EDGE RIVET LOCATIONS AT THE EDGE OF EXISTING HEAT SHIELD. (SEE DETAIL #1)
- 1.3 **-REPLACING EXISTING FLANGE RIVETS-**  
REMOVE THE 9 RIVETS WHICH ATTACH THE LEADING EDGE FLANGE OF EXISTING HEAT SHIELD TO THE FIREWALL. COUNTERSINK HOLES (100 DEGREES) AND INSTALL COUNTERSUNK RIVETS P/N CR3242-4-3. MARK THE RIVET LOCATIONS AT THE EDGE OF THE FLANGE. (SEE DETAIL #1)
- 1.4 **-LOCATING AND DRILLING SIDE EDGE AND FLANGE HOLES-**  
INSERT TRAILING EDGE OF FAIRING P/N NF IN BETWEEN THE SKIN AND THE EXISTING HEAT SHIELD AT FIREWALL AND SLIDE AFT UNTIL FAIRING LEADING EDGE FLANGE BUTTS FIRMLY AGAINST EXISTING HEAT SHIELD FLANGE. USING THE MARKS AT THE EDGE OF THE FLANGE MARK 8 POSITIONS MIDWAY BETWEEN THE 9 FLUSH RIVETS ON THE FLANGE OF P/N NF. DRILL #27 PILOT HOLES AT THESE LOCATIONS. CLECO LEADING EDGE OF P/N NF IN PLACE. DRILL 48 #30 PILOT HOLES ALONG SIDES OF FAIRING, USING EXISTING HOLES IN SKIN AS TEMPLATE. CLECO AS YOU GO. (SEE DETAIL #1)
- 1.5 **-LOCATING AND DRILLING TRAILING EDGE HOLES-**  
POSITION THE TRAILING EDGE SPACER P/N SP BETWEEN THE EXISTING HEAT SHIELD AND P/N NF AT TRAILING EDGE LOCATION. (SEE DETAIL #2) USING THE MARKS AT THE TRAILING EDGE MARK 5 RIVET LOCATIONS ON P/N NF MIDWAY BETWEEN THE 6 EXISTING RIVETS. DRILL 5 HOLES THROUGH THE FAIRING AND THE SPACER, USING #27 DRILL. CLECO TRAILING EDGE AS YOU GO. THE SPACER MAY BE FILED AND/OR SANDED, OR AN ADDITIONAL ALUMINUM SHIM MAY BE INSTALLED, TO ACHIEVE A FLUSH FIT.
- 1.6 **-DIMPLING HOLES AND INSTALLING INSULATION-**  
REMOVE FAIRING AND SPACER. USING A #30 DIMPLER, DIMPLE ONLY THE SIDE HOLES. DEBURR ALL HOLES AND CLEAN SHAVINGS FROM FAIRING, SPACER AND AIRCRAFT AND TREAT WITH ALODINE SOLUTION, OR EQUIVALENT. IF DESIRED, "KAOWOOL" HI-TEMP INSULATION, OR EQUIVALENT, MAY BE INSTALLED ABOVE FAIRING AT THIS POINT. (SEE DETAIL #2)

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**1.7 -FINAL FITTING AND CHECK-**

REFERENCING DETAIL #2, APPLY A BEAD OF HI-TEMP SILICON, OR EQUIVALENT, TO INNER SURFACE OF LEADING EDGE FLANGE OF FAIRING. SLIDE FAIRING INTO SPACE BETWEEN SKIN AND EXISTING HEAT SHIELD. INSTALL SPACER, CLECO FAIRING AND SPACER IN PLACE AND CHECK FOR PROPER FIT AND ALINEMENT OF HOLES.

**1.8 -RIVETING FAIRING-**

REFERENCING DETAIL #2, RIVET LEADING EDGE FLANGE USING EIGHT P/N CR3243-4-5 ROUNDHEAD CHERRYMAX RIVETS. SEAL EDGE OF FLANGE AND ANY OPEN AREAS WITH HI-TEMP SILICON, OR EQUIVALENT. USE 24 P/N CR3242-4-3 COUNTERSUNK CHERRYMAX RIVETS TO SECURE EACH SIDE OF FAIRING TO AIRCRAFT. USE 5 P/N CR3243-4-5 ROUNDHEAD CHERRYMAX RIVETS THROUGH TRAILING EDGE OF NACELLE FAIRING AND SPACER.

**1.9 -REINSTALLING EXHAUST STACKS AND COWLING-**

BEFORE INSTALLING THE EXHAUST STACKS, IMPROVED AIR/EXHAUST FLOW CAN BE ACCOMPLISHED BY SCARFING THE TRAILING ENDS OF THE PIPES AT A 20 DEGREE ANGLE FROM THE TOP TO THE BOTTOM PER DETAIL #2. BEFORE SECURING EXHAUST STACKS THEY SHOULD BE INSTALLED TEMPORARILY AND THE CLEARANCE BETWEEN THE TAILPIPE AND THE EXHAUST SHIELD CHECKED. IF THERE IS INSUFFICIENT CLEARANCE THE EXHAUST HANGARS MUST BE ADJUSTED TO GIVE THE PROPER CLEARANCE. REINSTALL OIL BREATHER ATTACHMENT, EXHAUST STACKS AND COWLING. CHECK COWL FLAPS FOR FREE MOVEMENT AND PROPER ALINEMENT, FILE AND ADJUST AS NECESSARY. UPON COMPLETION RUN ENGINE AND CHECK FOR RUBBING OR CHAFING.

**SECTION 2.0 =LEFT SIDE INSTALLATION=**

REPEAT STEPS 1.1 THROUGH 1.9 ON LEFT NACELLE.

**SECTION 3.0 =PAPERWORK=**

PERFORM PAPERWORK (FORM 337 AND LOGBOOK ENTRIES). PLACE KNOTS 2U, INC. MAINTENANCE MANUAL AND SUPPLEMENTAL TYPE CERTIFICATE WITH LOGBOOKS.

COMPONENT WEIGHTS = 9.4 LBS ARM = 82 IN. MOMENT = 770.8

**SECTION 4.0 =PARTS LIST=**

PART NUMBER	NO. REQ	DESCRIPTION
NF	2	NACELLE FAIRING
SP	2	9.75" X .75" SPACER
CR3243-4-5	26	ROUNDHEAD CHERRYMAX RIVET
CR3242-4-3	114	COUNTERSUNK CHERRYMAX RIVET
KAOWOOL	4 FT <sup>2</sup>	HI-TEMP INSULATION

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CROSSES REPRESENT LOCATIONS OF  
5 P/N CR3243-4-5 ROUNDHEAD CHERRYMAX  
RIVETS (BETWEEN OLD RIVET LOCATIONS)

LEFT AND RIGHT EDGES ARE SECURED BY  
24 P/N CR3242-4-3 CHERRYMAX RIVETS

DASHED LINES REPRESENT ORIGINAL  
TRAILING EDGE RIVET LOCATIONS

KNOTS  
2U

ISOMETRIC VIEW

SKIN/RIVET  
OVERLAP DETAIL

FIREWALL

AFT

EXISTING SKIN  
FAIRING IS BETWEEN  
SKIN AND EXISTING  
HEAT SHIELD

P/N NF FLANGE IS NOTCHED  
TO FIT OVER ANGLE AT EDGE  
OF FIREWALL & OLD HEAT SHIELD

P/N NF IS DIMPLED AT  
SIDE HOLE LOCATIONS

CHERRYMAX  
P/N CR3242-4-3

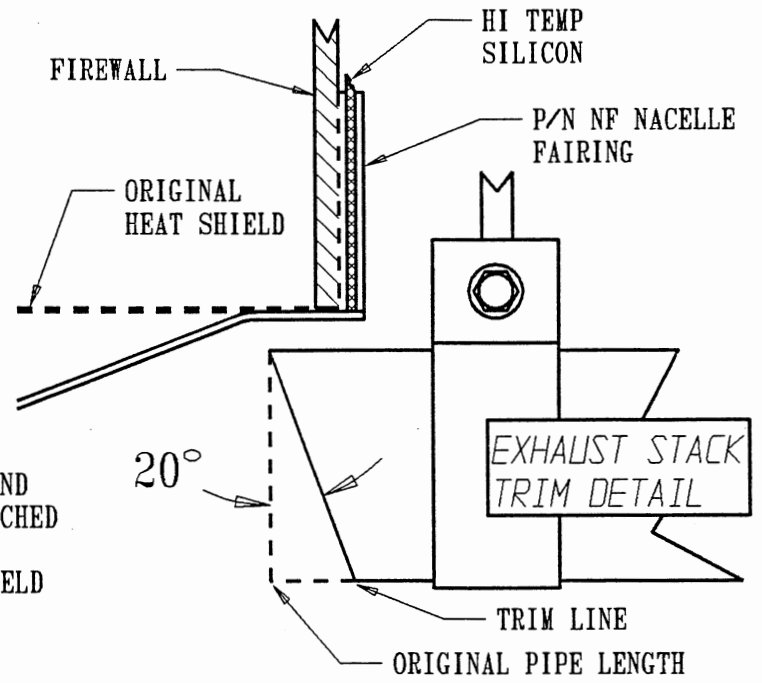
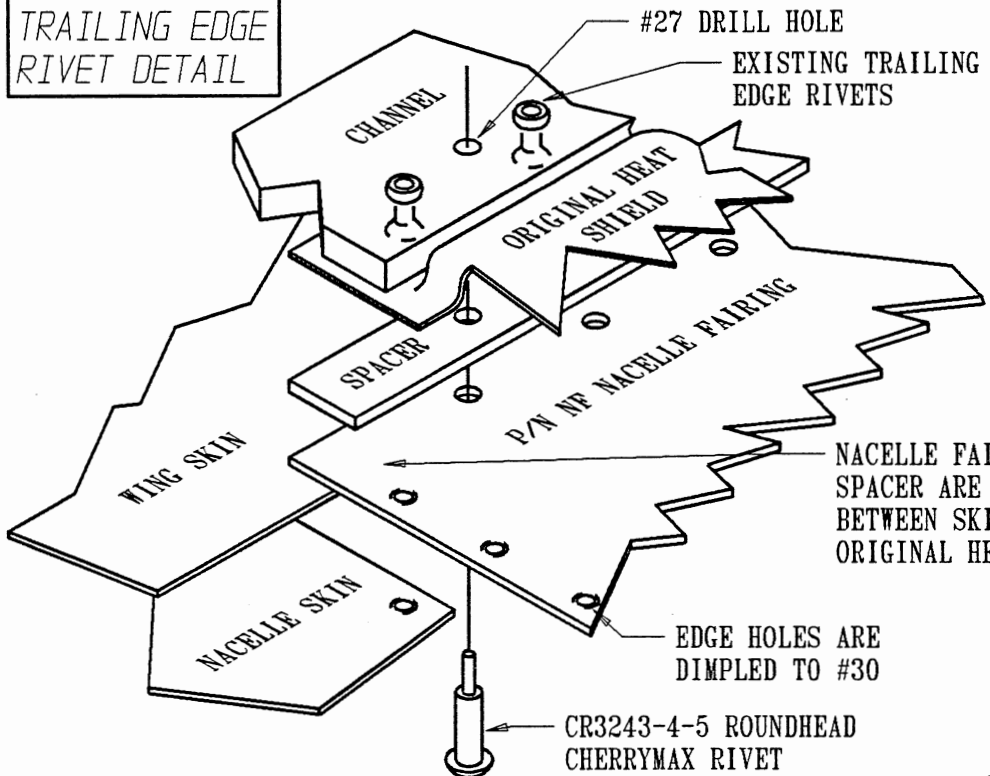
DASHED LINES REPRESENT ORIGINAL  
FLANGE RIVET LOCATIONS

CROSSES REPRESENT APPROXIMATE  
LOCATIONS FOR NEW FLANGE RIVETS  
P/N CR3243-4-5 ROUNDHEAD CHERRYMAX  
(BETWEEN OLD RIVET LOCATIONS)

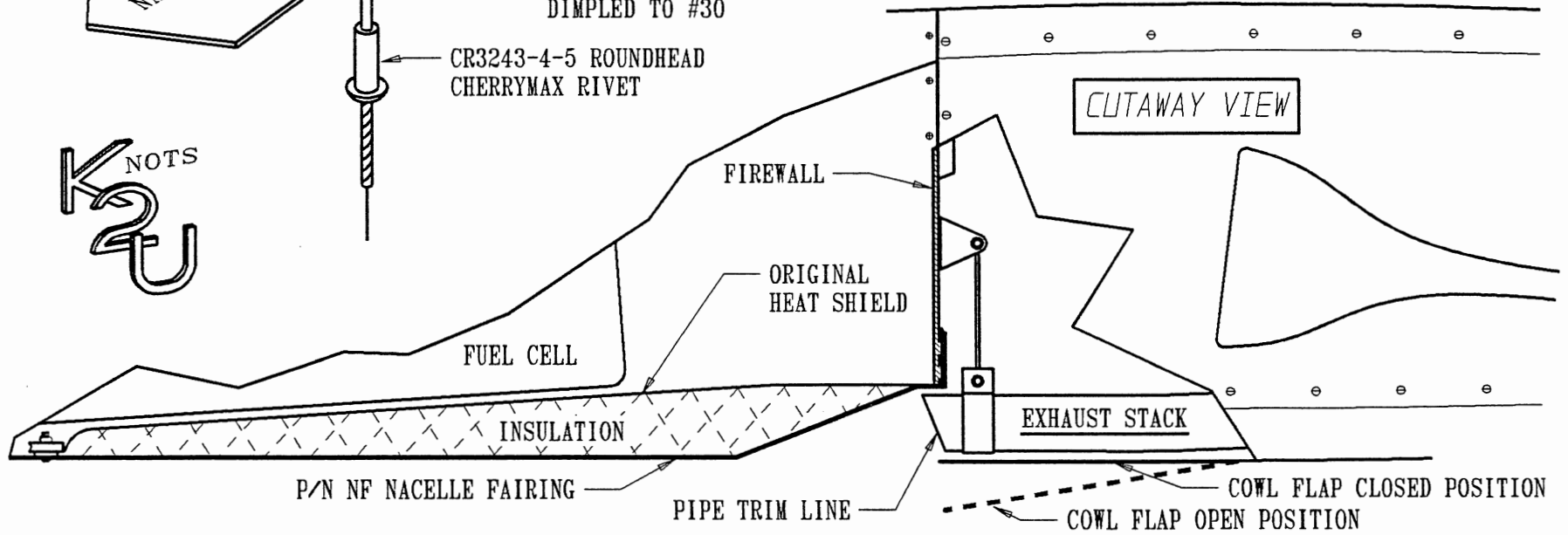
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FLANGE DETAIL  
(LOOKING AFT)

TRAILING EDGE  
RIVET DETAIL



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DETAIL #2 PAGE -4-

*SECTION 8.0 - MAINTENANCE MANUAL -*

NACELLE FAIRINGS

PART A. INSPECTION

1. DAILY INSPECTIONS, AT PREFLIGHT, CHECK FOR SECURITY OF FAIRINGS TO AIRCRAFT. ALSO, CHECK FOR CRACKS AND LOOSE RIVETS AND CHAFING BETWEEN THE EXHAUST PIPES AND FAIRING.
2. AT ANNUAL OR 100 HOUR INSPECTIONS CHECK FOR SECURITY TO AIRCRAFT. CHECK FOR CRACKS IN FAIRINGS AND/OR LOOSE RIVETS, CHAFING OF EXHAUST STACKS AND PROPER SEALING OF FAIRING LEADING EDGE FLANGE.

PART B. MAINTENANCE

1. IF CRACKS ARE FOUND IN THE FAIRING THEY MAY BE HELI-ARC WELDED, PER MAINTENANCE TECHNIQUES AND PROCEDURES OUTLINED IN FAR 43.13-1A. THE FAIRING SHOULD BE REMOVED FROM THE AIRCRAFT, PRIOR TO WELDING. UPON REINSTALLATION THE RIVETS MAY HAVE TO BE REPLACED WITH A LARGER SIZE.
2. IF LOOSE RIVETS ARE FOUND, THEY MAY BE DRILLED OUT AND REPLACED WITH THE NEXT LARGER SIZE RIVET.

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